DATSUN PATROL ENGINE MODIFICATION

Datsun Patrol (1969)

DESCRIPTION

The system for the Nissan Patrol consists of a series of engine modifications and the addition of a vacuum distributor control valve. Changes were also made in the carburetor and distributor. This system is designed to reduce emission of hydrocarbon and carbon monoxide emissions from exhaust system.

OPERATION

Carburetor - The Delco Rochester (Model B) manual choke carburetor had changes made in the idle setting in a manner to provide the leaner fuel-air mixture and distribution characteristics. This leaner carburetion helps reduce hydrocarbon and carbon monoxide emissions from the exhaust system.

Distributor - The distributor uses a modification of the centrifugal advance mechanism. These distributor changes provide for retarded spark timing at idle and low engine speeds.

Vacuum Control Valve - When intake manifold vacuum rises to a specified setting under a deceleration condition, the valve diaphragm moves, opening a port and applying full intake manifold vacuum to distributor vacuum advance mechanism. This moves distributor to full advanced position which aids in better burning of fuel mixture during deceleration periods.

SERVICE PROCEDURE

Ignition Timing - Special Setting. *See Tune-Up Chart for correct timing.*

Idle Speed & Mixture Adjustment - Make sure the dashpot does not interfere with throttle closing. Warm up the engine thoroughly with the transmission in neutral position. Connect ignition tachometer and timing light. Set the idle speed at 700 RPM by adjusting the throttle adjusting screw and adjust the ignition timing at TDC. Adjust the idle adjusting screw and throttle adjusting screw until the most satisfactory 750 RPM engine speed is obtained. Turn the idle adjusting screw clockwise for a leaner mixture until a 700 RPM engine speed is obtained.

Dashpot Adjustment - Unscrew the dashpot about one turn, and secure the lock nut. The clearance between the throttle lever and dashpot stem in fully depressed position should be about 1 mm (0.04").

Vacuum Control Valve - Turning the adjusting screw counterclockwise will increase the time the distributor vacuum remains above 4" of mercury after the throttle is released. One turn of the adjusting screw will change the valve setting by approximately ½" of mercury. If the valve cannot be adjusted to the specifications described in TESTING, replace valve.

TESTING

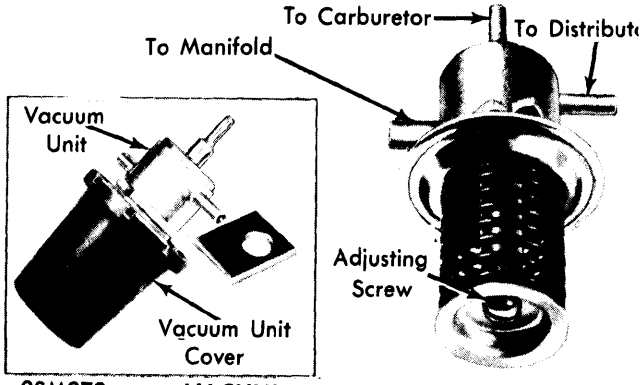
Vacuum Control Valve - With engine at normal operating temperature, ignition timing and hot (slow) idle speed correctly set, dashpot stem not touching throttle lever, proceed as follows:

1) Connect tachometer to engine, connect vacuum gauge to distributor vacuum tube, then clamp vacuum tube between vacuum valve and manifold. Disconnect distributor vacuum tube at distributor and clamp tube shut. Connect a vacuum gauge (0-30" of mercury) to the distributor vacuum tube. The tee fitting should have the same inside diameter as the distributor vacuum tube.

2) Adjust carburetor to obtain the specified engine speed and exhaust emission level. The distributor vacuum must be below 4" of mercury at idle. Remove the clamps from the vacuum tubes and reconnect-vacuum tube to the distributor. Remove vacuum valve cover.

3) Speed engine up to 2000 RPM in neutral and hold speed for approximately 5 seconds. Release throttle and observe distributor vacuum. When the throttle is released, the distributor vacuum should increase to above 16" of mercury and remain there for a minimum of 1 second. The distributor vacuum must fall below 4" of mercury within 3 seconds after the throttle is released.

4) If vacuum control valve operation is not correct, adjust as directed under Service Procedures above.



8SM279 **VACUUM CONTROL VALVE**

TROUBLE SHOOTING & DIAGNOSIS

The following diagnosis is for Nissan Engine Modification System (N.E.M.S.) only and is in addition to normal diagnosis of engine performance.

Engine Extremely Rough At Idle - Adjustments not within specifications. Vacuum leak in control valve or hoses. Fuel mixture too lean.

Idle Speed Cannot Be Adjusted - Vacuum advance control valve spring tension too weak.

Vacuum Does Not Increase During Deceleration - Vacuum control valve spring tension too strong. Manifold-to-control valve vacuum hose collapsed.

Engine Stalls - Idle speed too low. Idle mixture leaner than specified air-fuel ratio. Vacuum leak in control valve or hoses. Air cleaner improperly installed or gaskets missing.

Loss Of Power - Air cleaner dirty. Vacuum leak a control valve or hoses. Ignition timing incorrect. Dis tributor advance curves incorrect.

Vacuum Control Valve Noisy - Buzzing noise is norma Hissing noise indicates faulty valve (engine may als run roughly). Condition usually caused by turning a justing screw in too far (screw bottoms).

Engine Detonation - Ignition timing incorrect. Po grade of fuel.

Engine Overheats - Ignition timing incorrect. Cooli system restricted.

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